

IFPS Science Steering Team (ISST) Roadmap Master Plan

29 November 2005

ISST Roadmap Master Plan Executive Summary

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The IFPS Science Steering Team (ISST) Roadmap Master Plan succinctly describes the activities and plans of the ISST. These are laid out as Roadmap Items. The item objectives and goals, along with the associated milestones and actions, are defined. The Roadmap items have been categorized to aid in subjectively assessing the allocation of ISST time resources and to ensure that “longer-term” activities are nurtured. These categories are *Immediate*, *Influencing*, *Monitoring*, *Visionary*, and *Supporting*. The categories are defined below.

Immediate: The ISST is an active advocate and participant; and is typically involved in the related day-to-day activities. These items are considered to be “front burner.”

The *Immediate* roadmap items are (some items have overlap with other categories):

- Days 4-7 assessment
 - Given the wide variety of sources available for use in the generation of extended forecast grids, a need for a comprehensive assessment of guidance performance is required to support decision makers. The ISST will encourage and support a formal WFO/HPC/EMC Days 4-7 grid assessment through the development of a suite of objective metrics for the various sources of guidance/grid initializations
- RTMA field assessment
 - There are several overarching objectives to this assessment: To expose forecasters to real-time objective NDFD-matching gridded analyses. To facilitate early development of WFO tools and approaches that will utilize the mature RTMA/AOR in the preparation and critique of forecasts. Provide subjective field input to EMC to identify weaknesses and biases that are undoubtedly present in the early baseline versions of the RTMA.
- Digital Forecast Process
 - Provide both broad ideas and specific input on issues related to improving the scientific validity of methods related to the entire digital forecast process. This item is a larger umbrella under which many other ISST roadmap items fall, and is at the heart of our charter. The more immediate goal of this item is to incorporate field input and ISST opinion on key questions aimed at better defining the digital forecast process the NWS should be aiming for, and to produce a white paper summarizing these ideas and offering suggestions on how to get there. The longer term goal would be to push for and support specific activities that would help the NWS achieve the desired DFP state, and periodically re-visit what this should look like as resources and needs change.
- Gridded MOS field assessment
 - To assess whether gridded MOS fields are beneficial to forecast operations. The assessment would also look at how the forecasters used the gridded MOS fields.

- GFE system enhancements (real-time feedback, integrity, QC)
 - Continue to support ESRL/GSD (FSL) efforts to develop the GFE infrastructure to create enhancements that ultimately ease the forecaster workload and create better scientifically sound products.
- Centralized bias correction and smart initialization of grids
 - Influence incorporation of an effective Bias Correction scheme and to enact smart initialization at a central location. This will reduce the overhead related to ifpInit in the field offices and ensure a consistent application of smart initialization across the entire domain.

Influencing: The ISST actively advocates these items; but is not typically involved in the related day-to-day activities. Rather, the team is actively encouraging the involvement of participating individuals. These items are also considered to be “front burner.”

The *Influencing* roadmap items are (some items have overlap with other categories):

- GFE system enhancements (real-time feedback, integrity, QC)
 - See Immediate Topics
- Centralized Bias correction and smart initialization of grids
 - See Immediate Topics
- OCONUS AoR
 - Monitor CONUS AoR actions and develop an OCONUS requirements White Paper to implement an AoR in the OCONUS.
- Short Term Forecast Methods/Tools
 - Develop a loose framework of methods and tools resulting in more efficient and accurate short term gridded forecasts

Monitoring: The team is ready and prepared to quickly comment, respond, and act once these items are delivered.

The *Monitoring* roadmap items are (some items have overlap with other categories):

- NWS Concept of Operations changes (impacts on DFP)
 - Facilitate the discussion of evolving the gridded forecast paradigm in the proposed restructured NWS Concept of Operations

Visionary: These items are typically all encompassing and require the development of an operational concept and integration plan.

The *Visionary* roadmap items are (some items have overlap with other categories):

- Digital Forecast Process
 - See Immediate Items
- Short Term Forecast Methods/Tools
 - See Influencing Topics
- Probabilistic/uncertainty (including tropical fields)
 - To transition the NDFD and digital services from a highly deterministic set of forecasts to one that has a better balance of probabilistic and uncertainty information with the highly detailed geoclimatic information.

- Future elements and required support guidance
 - To recommend and encourage the creation of new grids (either forecast or guidance) that will make the forecast process more efficient, accurate, and scientifically correct. Also, to increase the amount of information produced in the gridded database to be useful for all partners and the public.
- LDFD / RDFD / NDFD
 - Explore the advantages of a multi-tiered digital forecast database within the frame work of a scientifically sound digital forecast process, and also considering what makes most sense for both the users, from the national to the local level. Explore answers to the following kinds of questions: 1) What would be the differences between a local, regional, and national database in terms of resolution, elements, forecast projections, update frequency, products generated from them, etc? 2) What entities within the NWS would be responsible for contributing to each of them? 3) How would they be interconnected? When answering some of these questions, we have to consider how these multiple tiers can most efficiently be produced within the current structure of the NWS, as well as potential future structure (therefore, this is tied in heavily with “CONOPS Changes”, “DFP”, and several other ISST roadmap issues).
- Role of local models
 - Identify and explore the utility of local models in the augmentation and enhancement of the gridded forecast process.

Supporting: The ISST serves a supporting role to encourage, facilitate, and nurture the continued progress of the associated items and projects. The team is not directly engaged in the day-to-day activities associated with these items.

The *Supporting* roadmap items are (some items have overlap with other categories):

- Input on Digital Services Directives Transition (10-23xx)
 - Ensure scientific integrity for each weather element in 10-23xx Directive series
- Gridded MOS
 - Support the efforts of MDL and ESRL/GSD in getting gridded MOS into GFE.
- Gridded Verification
 - To encourage the creation of gridded verification to allow forecasters to assess their skill at forecasting in the gridded world. Also, to encourage the forecasters to look at there verification scores on a grid and improve on their forecasts.
- CONUS AoR
 - Support development and execution of RTMA/AoR, including strong advocacy position.
- OCONUS AoR
 - See Influencing Items
- Smart Tool/Init Team

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- To support the role of the ST/SIT through direct correspondence and quarterly updates from the Team Chair.
- ESRL/GSD & MDL projects (as requested)
 - Act as sounding board/testbed/advisory committee to ESRL/GSD & MDL on an as-needed, as-requested basis
- Climatology
 - Maintain and Improve Current Climatology Grids for GFE

Additionally, there are ISST activities that are considered **Ongoing** and are in many instances intertwined with specified items in the roadmap (e.g., training).

- Input on directives
- Periodic review of roadmap (Quarterly)
- Training

Finally, the ISST communicates via a myriad of “vehicles” which include:

- Forums
- Briefings (Corp Board S&T Sub-Committee, DS-PAC, Regions, MICs, SOOs, etc)
- Input to DS-PAC
- Field surveys
- White papers
- One-pagers or memos
- Form new teams
- Ex-officio membership on other teams
- Dialogue with OS&T Director, regions, SOOs, etc
- Input on training requirements

The Roadmap Master Plan is designed to be dynamic. The ISST will revisit and update this document as needed in order to fulfill the ISST mission and charter.

Current ISST Membership:

Greg Mann (team lead)	CR	WFO Detroit
Jim Nelson (backup team lead)	AR	WFO Anchorage
Brad Colman	WR	WFO Seattle
Tom Salem	WR	WFO Glasgow
Bill Ward	PR	PRHQ
Steve Keighton	ER	WFO Blacksburg
Dan St Jean	ER	WFO Grey
Jeffrey Medlin	SR	WFO Mobile
Ken Falk	SR	WFO Shreveport
Karl Jungbluth	CR	WFO Des Moines
Lee Anderson (facilitator)	NWSHQ	OST